REMARKS

Applicant appreciates the detailed examination evidenced by the Office Action mailed February 17, 2004 (hereinafter "Office Action"), and the indication that Claims 2-14, 16, 18-20, 22-24, 27, 28, 30-32, 34 and 35 recite patentable subject matter. Applicant respectfully traverses several of the objections to the claims raised on page 2 of the Office Action, as the Office Action fails to indicate any basis for several of these objections. Applicant respectfully traverses the rejection of Claim 15 under 35 U.S.C. § 112, as there appears to be no antecedent basis error in this claim as alleged in the Office Action. Applicant respectfully traverses the rejections of Claims 1, 21, 25-26, 29, 33 and 36 based on U.S. Patent No. 6,501,788 to Wang et al. (hereinafter "Wang"), as Wang relates to ***receiver*** apparatus and operations, and does not disclose or suggest various ***transmitter*** apparatus and operations recited in Claims 1, 21, 25-26, 29, 33 and 36. Applicant respectfully traverses the rejection of Claim 17 based on U.S. Patent No. 6,515,980 to Bottomley (hereinafter "Bottomley") for at least similar reasons.

The claim objections

Applicant has amended Claims 3, 10, 18, 23, 31 and 34 to provide correct recitation of "a complex conjugate." Accordingly, Applicant submits that the objections to such recitations have been overcome.

In several instances, the Office Action objects to the use of the article "a" in several of the claims. The basis for these objections is unclear. It appears that the Office Action is implying some sort of antecedent basis error, but Applicant submits that proper antecedent basis for these recitations is present. For example, Claim 2 recites:

> The method according to Claim 1:
> wherein ***generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal*** is preceded by generating a first composite signal from at least one information symbol according to at least one code from a first group of codes of a set of quasi-orthogonal codes;

wherein ***generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal*** comprises generating a first interference-compensated information symbol from a first information symbol, the first composite signal and a code from a second group of codes of the set of quasi-orthogonal codes; and

wherein the second coded signal represents the first interference-compensated information symbol encoded according to the code from the second group of codes.

The Office Action apparently objects to the use of "an" and "a" in the highlighted recitations. Applicant submits, however, that antecedent basis for these recitations, *i.e.*, the highlighted acts, is provided in Claim 1, which recites:

A method of transmitting comprising:

generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal; and

concurrently transmitting the first coded signal and a second coded signal representing the interference-compensated information symbol encoded according to a second code.

Applicant respectfully submits that the phrasing of Claim 2 is grammatically correct and meets the requirements of 37 C.F.R. § 1.75 and, therefore, requests that the objections thereto be withdrawn. Similar arguments apply to similar objections to Claims 3, 6-11, 14, 18, 20 and 30.

Applicant further traverses the objections to Claims 10-13, which suggest amending these claims by inserting "integrated" after "scaling." If, for example, Claim 10 were to be amended as suggested, it would recite:

The method according to Claim 8, wherein generating a second interference-compensated information symbol from a second information symbol comprises:

integrating a product of the second composite signal and the complex conjugate of the code from the first group of codes over a symbol interval;

scaling ***integrated*** the integrated product by a scaling factor; and

subtracting the scaled integrated product from the second information symbol to generate the second interference-compensated information symbol.

Clearly, such a construction is not grammatical. Similar suggested amendments to Claims 11-13 would result in similarly ungrammatical constructions. Accordingly, Applicant respectfully requests withdrawal of these objections.

Applicant also traverses the objection to line 4 of Claim 23, as the "the integrated product" has antecedent basis in the preceding clause, *i.e.*, "integrates a product . . . ." Applicant further traverses the objection to Claim 32, as no line reference is provided, and the first occurrence of "The", *i.e.*, the first word in the claim, is correct. Applicant respectfully requests that these objections be withdrawn.

The § 112 rejection

The Office Action rejects Claim 15 under 35 U.S.C. § 112, alleging lack of antecedent basis for "the first group of codes" and "the second group of codes." Respectfully, such antecedent basis is provided in Claim 2, which recites:

> The method according to Claim 1:
> wherein generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal is preceded by generating a first composite signal from at least one information symbol according to at least one code from ***a first group of codes*** of a set of quasi-orthogonal codes;
> wherein generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal comprises generating a first interference-compensated information symbol from a first information symbol, the first composite signal and a code from ***a second group of codes*** of the set of quasi-orthogonal codes; and
> wherein the second coded signal represents the first interference-compensated information symbol encoded according to the code from the second group of codes.

Accordingly, Applicant respectfully requests withdrawal of this rejection.

Claims 1, 17, 21, 25, 26, 29, 33 and 36 are patentable

Claims 1, 21, 25, 26, 29, 33 and 36 stand rejected under 36 U.S.C. § 102(e) as being anticipated by Wang. Applicant respectfully traverses these rejections.

Independent Claim 1 recites:

> A method of transmitting comprising:
> generating ***an interference-compensated information symbol*** from a source information symbol based on knowledge of an information symbol and a first code used to generate a first coded signal; and
> concurrently transmitting the first coded signal and a second coded signal representing ***the interference-compensated information symbol*** encoded according to a second code.

In rejecting Claim 1, the Office Action cites column 4 of Wang. With respect to ***transmission*** operations, this column merely describes conventional spread spectrum transmission, *i.e.*, different channels are transmitted using different sequences of a set of sequences. Wang relates to techniques for processing such signals at a ***receiver***, and does not disclose or suggest the pre-compensation of a symbol for transmission recited in Claim 1. For at least this reason, Applicant submits that Claim 1 is patentable over Wang. Applicant further submits that independent Claims 21, 29 and 33 are patentable over Wang for at least similar reasons, and that Claims 25, 26 and 36 are patentable at least by virtue of depending from various ones of patentable independent Claims 21 and 33.

Claim 17 stands rejected as anticipated by Bottomley. Claim 17 recites:

> In a wireless communications system in which at least one base station is operative to transmit on respective channels defined by respective spreading codes selected from a set of quasi-orthogonal spreading codes, the set of quasi-orthogonal spreading codes including a first group of orthogonal spreading codes and a second group of orthogonal spreading codes, a method of transmitting comprising:
> generating an interference-compensated information symbol from a source information symbol based on knowledge of an information symbol and a code from the first group of codes used to generate a first coded signal; and
> concurrently transmitting the first coded signal and a second coded signal representing the interference-compensated information symbol encoded according to a code from the second group of codes.

Bottomley, like Wang, relates to various ***receiver*** signal processing operations. In particular, the apparatus 390 shown in the cited FIG. 5 of Bottomley is a ***receiver*** (*see* Bottomley, column 12, line 36 et seq.). The cited material from Bottomley, therefore, does not disclose or suggest the transmission-related operations recited in Claim 17. Accordingly, Applicant submits that Claim 17 is patentable over Bottomley.

Conclusion

Applicant submits that the objections to and rejections of the claims are overcome for at least the reasons discussed above, and that the claims are, therefore, in condition for allowance, which is respectfully requested. Applicant encourages the Examiner to contact the undersigned by telephone to resolve any remaining issues.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 17, 2004.

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